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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,154	02/13/2002	Miguel Peeters	1875.2040001	4699
26111	7590	06/23/2005	EXAMINER	
STERNE, KESSLER, GOLDSTEIN & FOX PLLC 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			KIM, KEVIN	
			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,154

Applicant(s)

PEETERS, MIGUEL

Examiner

Kevin Y. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/10/02</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,4-7,10-13,16,17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kerckhove (US 5,870,432, part of IDS submitted by applicant).

Claims 1,7,13,17 and 19.

Kerckhove discloses a modem (see Fig.1) to be used ADSL communication, where a multitone signal with a cyclic extension of a predetermined length, i.e., “M,” is transmitted and received. The modem comprises “a signal input” (14) for receiving the multitone and “a transversal equalizer,” (16) which is known as comprised of finite impulse response filter, connected to the signal input, wherein the combined impulse response (72) of the channel and the equalizer targets a target impulse response (68) having N taps. See Fig.2 and col.10, lines 2-

6. With respect to claim 17, though not shown a transmitting modem having a module for adding a cyclic extension is inherent since the transmitted signal include the a cyclic extension. Likewise, a D/A converter is required at the transmitter side as corresponding to the A/D converter at the receiver side.

Claims 4,10 and 16.

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As admitted by applicant, the target impulse response having N samples is internally represented by a data set having M+1 data elements, at least the first or last of the M+1 data elements being set to zero. See Specification at page 2, lines 5-24.

Claims 5,6,11 and 12.

Kerckhove discloses a calculation means for calculating the coefficients of the finite impulse response to minimize an error function (E) of the difference between the convolution of the channel with the transversal equalizer (Z1) and a target impulse response having N taps (Z2). See col. 8, lines 11-13, and Fig.4, col. 16, lines 56-58 in particular.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3,9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerckhove as applied to claims 1,7 and 13 above respectively.

Kerckhove discloses all the subject matter claimed, as explained above, but is silent as to "N=M." However, the number of taps N in the target impulse response and the cyclic extension length M appear to be arbitrary and thus is a matter of design choice, lacking criticality of the equality of the two numbers.

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5. Claims 2, 8, 14, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerckhove as applied to claims 1, 7 and 13 above respectively in view of Spruyt et al (US 6,088,386, part of IDS submitted by applicant).

Kerckhove discloses all the subject matter claimed but for “a bit adjustment means for lengthening or shortening one or more symbols for use in frequency domain interpolation.” Spruyt et al teaches a DSL modem including a phase rotator (TROT) and a skip/stuff means (TSS) for aligning transmitted and received symbols. See col.3, lines 39-45. The skip/stuff means (RSS) for aligning transmitted and received symbols functions to frequency modulating the multitone signal. Thus, it would have been obvious to one skilled in the art at the time the invention was made to add a phase rotator and a skip/stuff means in the DSL modem of Kerckhove for aligning transmitted and received symbols, as taught by Spruyt et al.

Claim Objections

6. Claim 1 is objected to because of the following informalities: In claim 1, line 2, “the receiver” should be “the modem” for consistency. Appropriate correction is required.

Drawings

7. The drawings are objected to because the boxes in Fig. 1 referenced by numerals 3, 6, 14, 19 are not properly labeled with respect to their respective functions. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from

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the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Venderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KEVIN KIM
PATENT EXAMINER

J. Lee *K. Kim*